DOCUMENT RESUME

ED 200 398 SE 033 410

AUTHOR Friedlander, Jack
TITLE Human Beings and Their Environment. Final Evaluation Report.
INSTITUTION Center for the Study of Community Colleges, Los Angeles, Calif.
SPONS AGENCY National Science Foundation, Washington, D.C.
PUB DATE 5 Dec 79
GRANT NSF-SED77-17962
NOTE 33p.; Contains occasional light and broken type.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Community Colleges; *Curriculum Development; *Curriculum Evaluation; Ecology; *Environmental Education; Humanistic Education; *Interdisciplinary Approach; *Postsecondary Education

ABSTRACT

The purpose of this project was to develop and disseminate interdisciplinary instructional materials that focus on human beings and their impact on nine environmentally important areas within the continental United States. Drafts of the instructional modules and mini-modules were prepared by interdisciplinary teams participating in two summer workshops. Many of these modules, focusing on the Mojave Desert and the Northern Sierra Nevada, were completed by instructional design experts and sent to faculty members at one or more community colleges for peer review. Completed sets of materials will be sent to 48 individual colleges involved in the project. Further dissemination will take place through invitational workshops for other community colleges within the region.
(Author/CO)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED200398

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY
Mary L. Charles

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

HUMAN BEINGS AND THEIR ENVIRONMENT

Final Evaluation Report

SED 77-17962

SE 033 410

HUMAN BEINGS AND THEIR ENVIRONMENT

Final Evaluation Report

Center for the Study of Community Colleges

Prepared by

Jack Friedlander

December 5, 1979

DEC 1 2 1980

HUMAN BEINGS AND THEIR ENVIRONMENT

Final Evaluation Report

This is the final evaluation report of the National Science Foundation-sponsored project, "Human Beings and Their Environment." The purpose of the project is to develop and disseminate interdisciplinary instructional materials in science education that focus on human beings and their impact on nine environmentally important areas within the continental United States. The project, conducted by the League for Innovation in the Community College and the Peralta Community College District, calls for 32 faculty members working in interdisciplinary teams to develop instructional materials. Two workshops each lasting two weeks were held in the summer of 1978.

The three long-range goals of this program were:

1. To develop, process, field-test, and revise interdisciplinary instructional modules.
2. To improve science instruction through the utilization of interdisciplinary instructional modules which will demonstrate for students the relationships between scientific concepts and the actions of human beings in their environments.
3. To disseminate instructional materials to the 48 colleges in the

League for Innovation and provide an opportunity for national distribution.

The more immediate project results anticipated are:

Five high-quality instructional modules will be produced at each of the two environmental site workshops. Thus, a total of ten high-quality, maxi-instructional modules developed by interdisciplinary teams on two selected environmental sites will be produced. The packages and materials will be designed for use in regular science courses, as supplementary work, and/or independent study for community college students, and in citizen-oriented science education programs.

A total of 32 mini-modules of instruction developed by individuals on selected environmental sites will also be produced. At least 10 of these will meet the highest standards of instructional product development.

Science educators in the community college will increase their knowledge of special environmental areas which can be directly transferred to students in the instructional setting.

Continuing development of a network of science educators in leading community colleges will be fostered.

Evaluation of Summer Workshops

At the conclusion of the summer workshops, program participants and key project administrators were asked to evaluate the extent to which they felt the objectives of the workshops were achieved. The results of their evaluations, presented in an earlier report (Friedlander, 1979[1]), showed that the two workshops had been very successful in achieving the project objectives. Potentially useful drafts of ten interdisciplinary instructional modules and ten micro-modules were developed; faculty members who took part in the workshops increased their knowledge of special environmental areas; the participants learned to develop instructional modules; and instructors were able to exchange ideas with colleagues from various disciplines and other colleges.

Development of Instructional Packages

The drafts of the modules produced during the summer workshops were forwarded to instructional design experts for further development. The modules were revised to conform to a standard instructional format, edited for clarity and appropriate reading level, and supplemented with art work and slides. By June, 1979, most of the instructional packages were ready

---

[1]Friedlander, Jack Evaluation Report on Human Beings and Their Environment. Center for the Study of Community Colleges: Los Angeles, CA. 1979

to be peer reviewed and field tested.

Field Testing of Modules

Methodology

During the summer (June through September) of 1979, each of the completed instructional modules (12 out of 14) and mini-modules (3 out of 10) was sent to faculty members at one or more community colleges. The instructors were asked to review the module(s) and then to respond to questions on the Peer Review Form (See Appendix) concerned with the strengths, weaknesses, suggestions for improvements, and potential uses of the self-instructional materials.

The instructors were also asked to select one or more of their students to complete the self-instructional module. Upon completion of the unit, students were asked to fill out the Student Response Sheet (See Appendix). The items on this form required students to evaluate the self-instructional package in terms of its clarity, value, length, level of interest, strengths, weaknesses, and potential uses. The number of instructors (peer reviewers) and students who evaluated each of the modules are presented in Table 1.

Results of Field Tests

Evaluations of the self-instructional modules are based on responses to the Peer Review Form and the Student Response Sheet. The results of their

Table 1

Number of Peer Reviewers and Students

Who Evaluated Each of the Modules

Instructional Module	Number of Peer Reviewers	Number of Student Reviewers
Mojave Desert: Physical Factors	3	7
Mojave Desert: Desert Plant Communities and Ecological Relationships	3	9
Mojave Desert: Common Desert Animals and Ecological Relationships	2	8
Mojave Desert: Current Environmental Status	2	2
Mojave Desert: Methods Humans Have Used to Change the Environment	2	2
Mojave Desert: Problems and Future Prospects	3	2
Mojave Desert: Action Strategies for Environmental Protection	2	3
Northern Sierra Nevada: The Physical Environment	4	4
Northern Sierra Nevada: Life Zones and Plant Communities	4	3
Northern Sierra Nevada: Common Animals	5	5
Northern Sierra Nevada: Current Environmental Status	3	1
Northern Sierra Nevada: Planning Process-Awareness and Future Prospects	2	4
Stream Erosion	1	3
Biotic and Abiotic Influences	1	2
Desert Plants, Stem and Leaf Adaptations	-	5
Total Number of Reviewers	37	60

evaluations have been summarized separately for the modules on the Mojave Desert and those concerned with the Northern Sierra Nevadas. Vinettes, based on the comments made by faculty members (peer reviewers) and students, are also provided for each of the 15 individual instructional modules that were reviewed.

Summary of Peer Reviews

Instructors who responded to the Peer Review Form were asked: (1)to note any particularly strong features of the unit which should be retained; (2)to offer suggestions on how the package could be improved; and, assuming that the improvements they suggested were made, (3)to rate on a three-point scale ("very useful," "limited usefulness," "not useful") the potential usefulness of the self-instructional materials for students participating in courses on general biology, ecology, botany, geology, and areas other than those included in this list.

For each of the two open-ended items, the written comments were first identified and then placed into meaningful categories. The percentage of peer reviewers who made a comment in a particular category was then computed. Responses to the close-ended item on the Peer Review Form were simply tabulated

Strengths of Modules on Mojave Desert

Over 30 percent of the instructors who evaluated a module on the Mojave

Desert noted that the unit they reviewed was particularly strong in its content (38%), organization (31%), and illustrations - slides, diagrams, tables (31%). A smaller percentage of the instructors (25%) said that the questions embedded in the text were excellent. The same percentage of the peer reviewers felt that the entire unit they evaluated was strong and should be retained.

Suggestions for Improving Modules on Mojave Desert

Close to 45 percent of the peer reviewers suggested that the unit they evaluated could be improved if some of the material was presented a bit more clearly. According to the evaluators, the instructional units they reviewed could be improved by making minor revisions in the practice exercise (38%); by adding slides to help clarify material presented in the text; and by presenting important topics which were covered in greater depth (13%). Few instructors (6%) expressed concern with the accuracy of the content presented or with the length of the unit.

Potential Uses of Mojave Desert Modules

Half of the peer reviewers indicated that the unit they evaluated might be very useful if used in an ecology course. A much smaller percentage of the instructors felt the module they reviewed would serve as a useful instructional aid for courses in botany (19%), geology (19%), and general biology (13%). Just over 40 percent of the evaluators listed one or more

other areas in which the unit they reviewed might be very useful.

Strengths of Modules on Northern Sierra Nevadas

One-third of the peer reviewers noted that the entire unit they evaluated was strong and should be retained in its current form. Features of the modules on the Northern Sierra Nevadas rated as particularly strong by the peer reviewers included the content (33%), interesting and clear presentation of information (27%), slides (20%), and the format of the exercises (7%).

Suggestions for Improving Modules on Northern Sierras

Sixty percent of the peer reviewers suggested that the unit each of them evaluated could be improved if a few sections of the material were presented in a clearer fashion. Two other features of the units on the Northern Sierra Nevadas which more than ten percent of the evaluators felt needed to be improved were the accuracy of the content presented (20%) and the clarity of the slides (13%).

Potential Uses of Modules on Northern Sierra Nevadas

About 47 percent of the instructors rated the particular module they reviewed as potentially very useful for courses in ecology. A much lower percentage of the peer reviewers felt that the particular module they evaluated could be potentially useful for courses in general biology (27%),

geology (20%), or botany (7%). However, most of the peer reviewers (87%) identified one or more instructional areas where the package they evaluated could be potentially "very useful." To illustrate, 33 percent of the instructors noted that persons who were interested in learning about the Sierras or who expected to visit them would find the self-instructional learning materials "very useful."

Summary of Student Evaluations

After finishing one of the self-instructional units, students were asked to complete the Student Response Sheet. The items on this form asked the reviewers: to note any features of the unit which they found interesting; to identify parts of the unit that were unclear or confusing; to offer suggestions on how the package could be improved; to indicate whether all the materials and instructions needed to complete the unit were provided; to make recommendations on the potential uses of the module; and to note whether or not they found the module reviewed to be clear, enjoyable, of adequate length, and valuable, or confusing, dull, too long, a waste of the evaluator's time.

Written comments to each of the four open-ended items were placed into meaningful categories. The percentage of student evaluators who made a comment in a particular category was then computed. Answers to the remaining two items on the Student Response Sheet were simply tabulated.

Strengths of Modules on Mojave Desert

Just under 60 percent of the students noted that the content area of the unit they reviewed was very interesting and should be retained. Other features of the modules on the Mojave Desert identified by some students as helpful were the slides, maps, and illustrations (22%), and the practice exercises (9%). One-fourth of the students found the entire unit they reviewed to be interesting and they recommended that it be retained in its present form. When asked to identify parts of the unit that were unclear or confusing, 95 percent of the students stated that all of the materials they reviewed was easy to understand and well presented. The remaining student evaluators noted that with some minor editing of the text or illustrations, the self-instruction material they reviewed would be clear and understandable.

One additional indication of the clarity of the instructional packages was the finding that 93 percent of the students who were provided with the total set of materials said that they were able to complete the self-instructional unit successfully. The remaining students reported that they were not able to answer a question in the exercise section of the unit from the material provided.

Suggestions for Improving Modules on Mojave Desert

Just under 20 percent of the respondents thought that the unit they reviewed could be improved if an important topic presented was covered more thoroughly

(19%) and/or if the content of the unit was raised to a level appropriate for college students (19%). Other suggestions offered by students on how the units they evaluated could be improved included adding more visual aids or slides (14%) and reducing the length of the module (14%).

Potential Uses of Modules on Mojave Desert

Close to 35 percent of the students noted that the module they reviewed would be useful to citizens interested in learning about the Mojave Desert. A lower percentage of the reviewers tought the package they completed would be useful to students enrolled in courses on ecology (28%), general biology (22%), geology (19%), or for non-science majors with little background in the biological or ecological sciences (16%).

Student Descriptions of Modules on Mojave Desert

Students were provided with a list of eight descriptive statements and were asked to indicate which of these captured their feelings about the module they reviewed. Nearly 85 percent of the students found the material in the unit they reviewed to be clearly presented. Few of the students found the instructional unit they worked on to be dull (6%) or confusing (3%), and none of them felt that completing the module was a waste of time. However, less than half of the students described their experience with the self-instructional packages to be valuable (47%) or enjoyable (38%). It is important to note that many of the students were science majors already

familiar with the information covered in the unit and, as such, may not have found their review of familiar material to be valuable or enjoyable.

Strengths of Modules on Northern Sierra Nevadas

One-third of the students reported that the content area of the module they worked on was very interesting and should be retained. Other features of the instructional packages which students identified as helpful in enabling them to learn the material presented were the slides and photographs (20%), quizzes (7%), and the underlining of important points (7%). About 13 percent of the students noted that all parts of the unit they completed were interesting and should be retained.

When asked to identify parts of the module that were unclear or confusing, over 20 percent of the students reported that the illustrations (symbols, graphs) were hard to interpret (33%); additional information (diagrams, slides, content) was needed to help clarify the content presented (27%); and that a particular section of the unit was not clear (20%). On the other hand, some of the other students (27%) found the entire unit they completed clearly presented and easy to understand.

In response to the question on whether all the materials and instructions needed to complete the self-instructional package were available, 84 percent of the students answered in the affirmative. The other 16 percent of the reviewers did not find the information presented in the module sufficient to answer all of the exercise questions.

Suggestions for Improving Modules on Northern Sierra Nevadas

Close to 30 percent of the students suggested that the module they reviewed could be improved if an important topic presented was covered in greater depth. Other suggestions for improving the quality of the instructional packages included: better isolation of critical information (13%); more illustrations (pictures, maps) to help clarify important points (13%); and elimination of grammatical errors (13%).

Potential Uses of Modules on Northern Sierra Nevadas

A relatively high percentage (47%) of the students noted that the unit they worked on would be helpful to individuals with little background in the life of the Northern Sierra Nevadas and who are interested in learning about this important geographical area. Fewer students felt that the module they reviewed would be useful in courses on ecology (40%), biology (13%), or geology (13%).

Student Descriptions of Modules on Northern Sierra Nevadas

Over half of the students (53%) felt the unit they reviewed was clearly presented and of satisfactory length. A smaller percentage of the students described their experience with the unit they worked on as valuable (40%) and enjoyable (33%). Although some of the students considered the unit they completed to be dull (33%), too long (20%), or confusing (13%), no one regarded their experience as a waste of their time.

Summary of Field Test Results for Individual Modules

In the previous section of this report, the results of the field tests were combined to assess the overall effectiveness of the modules concerned with the Mojave Desert and the Northern Sierra Nevadas. While this information provides important insights on the overall success of this project, it masks significant differences in the strengths and limitations of the individual modules reviewed. In this section, the responses to the Peer Review Form and the Student Response Sheet have been summarized for each of the maxi- and mini-modules that were evaluated. It is hoped that the descriptions presented below will provide diagnostic information to those individuals charged with revising those modules that need to be strengthened.

Mojave Desert: Methods Humans Have Used To Change the Environment

By Two Peer Reviewers

When asked to cite the strengths of this module, one peer reviewer noted that it was generally informative. The other reviewer found the module was well-researched, provided a good history of the problems covered, and contained good slides. Neither of the reviewers noted the module as being "very useful" in science-related courses. However, they did feel that this self-instructional unit would be of "limited usefulness" for courses in

general biology, ecology, or geology.

By Two Student Reviewers

The students who reviewed this unit described it as clear, enjoyable, valuable, and satisfactory in terms of length. The students found the information on the history of the desert to be interesting and, in general, the module to be informative. In the opinion of one of the reviewers, everyone should be exposed to this unit of instruction to increase awareness of what is taking place in the desert environment. The other reviewer noted that this module would be valuable for special interest groups and classes concerned with the environment.

Mojave Desert: Current Environmental Status

By Two Peer Reviewers

Both instructors who reviewed this unit noted that it was well-written, well-organized, and quite informative. The evaluators felt that this module might be "very useful" for courses in ecology and of limited usefulness for courses in general biology and geology.

By Two Student Reviewers

One of the students who worked on this unit found it to be clear, concise, and valuable, The reviewer did not feel that any changes in the unit were needed. The other student who completed this module described it as

clear, of proper length, but dull. He recommended that this unit could be improved by adding more visual aids.

Mojave Desert: Problems and Future Prospects

The three peer reviewers reported that the topics covered in this module were extremely important and should be retained. However, there were several features of the unit identified by the evaluators that need to be corrected in order to make this module an effective instructional aid. According to the reviewers, this unit could be improved if there were better integration of the information presented, if certain topics were covered more fully, and if the exercises corresponded to the objectives and content of the instructional package. The reviewers noted that once these improvements were made, the modules would be potentially valuable in courses concerned with ecology, geology, and environmental sciences and, possibly, architectural and engineering courses on planning and development.

By Two Student Reviewers

Both students who worked on this unit described it as clear, enjoyable, and valuable. One student found the section on plans for designed energy efficient houses to be very interesting. The other reviewer identified several of the exercises as being helpful in enabling him to learn the material presented. In the students' opinion, this unit could be utilized by individuals enrolled in courses in biology, ecology, California history, and solarized heat construction.

Mojave Desert: Action Strategies for Environmental Protection

By Two Peer Reviewers

This unit was characterized by both reviewers as excellent. The rave reviews given to this module by the evaluators are captured in the following quotes. "The method of question writing for each frame was well done. One of the best jobs I've ever seen." "The format of input and feedback is excellent." "This unit should be of unusual interest to institutions in the Southwest."

Each of the reviewers thought that this unit would be "very useful" for courses in ecology and environmental awareness. One of the evaluators also thought that this module would be useful for courses in general biology, botany, conservation, and natural history of the desert. The other reviewer noted that junior and senior high school students might find this self-instructional package helpful.

By Three Student Reviewers

The three students who evaluated this unit found it to be clearly presented. The evaluators differed in that one student said the unit was enjoyable and valuable; a second student noted that the length of the unit was satisfactory; however, a third reviewer found the unit to be dull, repetitious, and too long.

The students suggested that this unit could be improved if issues related to the problems of the desert were covered in greater depth. According to the reviewers, this unit would be valuable for students in environmental science courses.

Mojave Desert - Natural History: Physical Factors

By Three Peer Reviewers

The three instructors who reviewed this unit reported that it was well-organized, clear, and valuable in terms of providing students with good introductory material on the Mojave Desert. With some modifications in the content, the reviewers felt that this self-instructional package would be "very useful" for a course in ecology or a more specialized class on the Mojave Desert.

By Seven Student Reviewers

A total of seven students enrolled in two community colleges reviewed this module. Four of the students were provided with written materials and slides. These individuals found the unit to be clear, well-organized, enjoyable, valuable, and satisfactory in terms of length. The material on the rain shadow effect, effects of clear desert skys on day and night temperatures, and plant forms were identified by the reviewers as being very interesting. One student noted that the slides were helpful in enabling him to understand the material presented. The three students who were not provided with the slides gave somewhat less favorable evaluations of the

unit than those individuals who had the benefit of reviewing the entire package. In general, the reviewers indicated that this self-instructional module would be helpful in a very basic geology class. Several of the evaluators thought the material covered in this unit was too elementary and might be more appropriate for junior and senior high school students.

Mojave Desert: Desert Plant Communities and Ecological Relationships

By Three Peer Reviewers

There was some disagreement among the peer reviewers on the usefulness of this unit. One evaluator thought the module was well done but the content needed to be elevated to a level appropriate for college students. Another reviewer did not view the module as being very useful for any particular type of college-level course. However, a third reviewer noted that the unit would be "very useful" for courses in ecology or botany. In the opinion of the reviewers, this unit could be a valuable instructional aid if improvements are made in the level and clarity of the content and practice exercises.

By Nine Student Reviewers

In general, the students who worked on this module described it as clear, enjoyable, interesting, and satisfactory in length. Several of the students noted that the slides helped facilitate their understanding of the subject matter presented. Most of the reviewers indicated that non-science majors

with little or no background in the biological or ecological sciences would find this unit to be helpful.

Mojave Desert: Common Desert Animals and Ecological Relationships

By Two Peer Reviewers

One of the reviewers reported that the content of this module was well-written and the diagrams were clear and accurate. The evaluator thought that this unit would be valuable for courses in ecology. The other reviewer did not feel that this unit would be "very useful" in any particular course or program.

By Eight Student Reviewers

Each of the eight students who reviewed this instructional package found it to be clear and very well presented. Four of the eight evaluators reported that working on this unit proved to be a valuable experience. One criticism expressed by several of the reviewers was that the unit was too long. Some of the reviewers thought this unit might be potentially useful for students enrolled in courses on biology, ecology, and environmental science.

Northern Sierra Nevada: Current Environmental Status

By Three Peer Reviewers

According to the peer reviewers, the information presented in this unit

is pertinent and provides a good overview of the problems related to this geographical region. The instructors who evaluated this module thought that it would be "very useful" for courses in ecology and natural history. The evaluators felt that this unit could be improved by: identifying where the slides were taken; integrating the slides with the text; and correcting errors in grammar; and improving the structure of awkward sentences.

By One Student Reviewer

The student who worked on this module reported that it was clear, enjoyable, and valuable but a bit too long. The student enjoyed the slides and felt that the self-quizzes helped her to learn the material presented. In the reviewer's opinion, this module would be helpful in an introductory ecology course.

Northern Sierra Nevada: The Physical Environment

By Four Peer Reviewers

In the words of one of the evaluators, this module is "generally OK and has the appearance of a finished product." The reviewers noted that this self-instructional package might be "very useful" in a geology course. One instructor recommended that students should have some background in earth science or geology prior to working with this package. It seems that with a few modifications, this package can serve as a good instruc-

tional resource for students interested in geology and the Northern Sierra Nevadas.

By Four Student Reviewers

Three of the four students who completed this unit reported that the experience of doing so was valuable. These reviewers also felt comfortable with the length of the unit. However, all of these students noted that parts of the unit were not clearly presented and, as a result, difficult to understand. The other reviewer stated that he had some background in geology and, as such, found this module to be clear but too elementary. The main criticism of this unit was that some of the illustrations (figures, graphs, symbols, maps) were confusing and difficult to interpret. Features of this package students identified as interesting and helpful included the photographs and the discussions of the history and rivers of the Northern Sierra Nevadas. In general, the reviewers thought that this unit would be appropriate for students with little or no background in geology.

Northern Sierra Nevada: Life Zones and Plant Communities

By Four Peer Reviewers

The peer reviewers judged this module to be of high quality and ready to be used by students in its present form. A particularly strong feature

of this unit was the presentation on how the species are interrelated. One reviewer noted that this module could be easily adapted to slide/tape presentations. The peer reviewers observed that this instructional package might be helpful to students in general biology, ecology, or botany or for anyone planning to visit the Northern Sierra Nevadas.

By Three Student Reviewers

The students who reviewed this unit noted that most of the material presented was clear and enjoyable. There were, however, a few paragraphs (particularly those concerned with the rock succession) that were unclear and in need of some editing. While the students reported most features of the unit to be interesting and informative, they felt that certain topics should be covered in greater depth. In the opinion of the reviewers, this unit would be appropriate in introductory courses in biology and ecology.

Northern Sierra Nevada: Planning Process-Awareness and Future Prospects

By Two Peer Reviewers

There were marked differences between the two peer reviewers in their evaluations of this unit. One reviewer noted that this module covered a "rather dull subject fairly well but has no place in a 'true' science course." He indicated that perhaps instructors of sociology would find

this unit to be helpful. The other reviewer noted that the concepts addressed in this module were important, but the presentation of the material was often unclear and somewhat biased. The reviewer indicated that if the major weaknesses in the text were corrected, this module could provide teachers of geology with a valuable instructional resource.

By Four Student Reviewers

The students who reviewed this unit described it as clear but dull. In general, the evaluators felt that the objectives of this module were important and if developed properly, would prove to be a valuable aid in a course on environmental problems and planning. The students recommended that this unit be edited to eliminate all grammatical errors and awkward sentences.

Stream Erosion (Mini-Module)

By One Peer Reviewer

The instructor who reviewed this mini-module noted that this unit might be "very useful" in courses on ecology or geology. However, the reviewer thought that the content of the unit may be too elementary for students at the college level.

By Three Student Reviewers

The students who completed this mini-module on stream erosion found it to be clearly presented, enjoyable, and appropriate in terms of length.

When asked to identify features of the unit which were interesting, unusual, or helpful, the students cited the sections on courses of erosion, hydrolic mining, and logging. The slides were also cited as being interesting and helpful. Two of the three reviewers suggested that this unit could be improved if more diagrams showing the processes of stream erosion were included. The reviewers thought this unit might be useful in courses on geology.

Biotic and Abiotic Influences (Mini-Module)

By One Peer Reviewer

The instructor who reviewed this unit thought that it was excellent. The reviewer observed that using man as an example of an important influential member of a natural community was a particularly strong feature of this self-instructional unit. In the reviewer's opinion, this module could be improved by adding a section on animal - animal interaction. The instructor noted that this unit could be "very useful" for courses in biology and ecology.

By Two Student Reviewers

Although the student reviewers were not provided with the slides that accompany this unit, they still found the module to be clear and understandable. The students thought that the slides might have made completing this unit more enjoyable. One student commented that the format (objectives-

content-feedback) of this unit was helpful in enabling her to learn the material. The major criticism made of this instructional package was that it does not cover enough material.

Desert Plants, Stem and Leaf Adaptations (Mini-Module)

Peer Reviewers

This unit had not been returned from the peer reviewers in time to be included in this evaluation report.

By Five Student Reviewers

Most of the students who reviewed this module on Desert Plants, Stem and Leaf Adaptations described it as clear, enjoyable, valuable, and appropriate in terms of length. When asked to identify features of the unit that were interesting, helpful, and should be retained, two of the four reviewers who answered this question responded "all of it." The reviewers thought that this module would be valuable to students in biology and botany.

Final Revision and Dissemination of Modules

According to the Project Director, information gained from the field tests will be used to make necessary revisions in the interdisciplinary modules to insure that they are of high quality. Once all of the instructional modules are revised, a complete set of materials will be sent to each of

the 16 districts (representing 48 individual colleges) in the League for Innovation in the Community College. As currently envisioned, other plans for dissemination of the interdisciplinary materials include having project participants at Cerro Coso College and Feather River College conduct an invitational workshop for community colleges within their region in order to display the modules and provide instruction concerning their utilization in science education.

Summary

At this point, it appears that nearly all of the major objectives of this project have been successfully achieved. A set of high quality interdisciplinary instructional modules have been developed with plans in progress to make these materials available to science educators throughout the nation; science instructors who participated in the workshops have increased their knowledge of special environmental areas; workshop participants have learned to develop instructional modules; instructors involved in this project have been able to exchange ideas with colleagues from various disciplines and colleges; and all those involved in this enterprise, especially the key project personnel, have learned valuable lessons concerning the development of interdisciplinary instructional modules. The knowledge acquired from this project should prove to be very valuable in future efforts to develop high quality instructional materials. In sum, it appears that all persons associated with this program - from the principal investigator to the students who field tested the modules - derived benefit from their participation in this project.

APPENDIX

PEER REVIEW FORM

As you review the unit, please note on this Peer Review form any modifications you recommend. DO NOT WRITE ON THE UNIT ITSELF. Return the form and the unit immediately in enclosed self-addressed envelope. Thank you!

Unit reviewed:_____ Sent:_____

Reviewer's name:_____ Date:_____

Institutional affiliation_____

What suggestions would you make for improving this package?

_____

_____

_____

_____

(Use back side or other sheets if needed)

Please note any particularly strong features of the unit which should be retained:

_____

_____

_____

Listed below are a number of potential uses for self-instructional materials. Assuming that the modifications you suggested were adopted, please assess the importance of this package for each of these potential uses. It might be helpful to review the package objectives before you make these assessments.

Potential Uses	very useful	limited usefulness	not useful
Courses:			
General Biology	_____	_____	_____
Ecology	_____	_____	_____
Botany	_____	_____	_____
Geology	_____	_____	_____
Other (write in):	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SELF-INSTRUCTIONAL UNIT -- STUDENT RESPONSE SHEET

Name_____ School_____ Date_____ Major_____

Title and Author of Unit_____/_____

WRITE ALL ANSWERS ON SCRATCH PAPER. DO NOT MARK THIS UNIT!

THEN FILL OUT THIS SHEET, USING BACK SIDE IF MORE ROOM IS NEEDED.

1. Were any parts of the unit unclear or confusing? Please give page and paragraph:_____

2. Please note any features of this unit which were interesting, unusual or helpful and should be retained:_____

3. Please suggest any changes which you feel would improve this unit:_____

4. Were you provided with all the materials and instructions you needed to complete the unit? If not, what was missing?_____

5. In your opinion, this unit would be useful for:_____

6. Put a check next to the words which describe your feelings about this unit:

_____Clear	_____Confusing
_____Enjoyable	_____Dull
_____Length OK	_____Too Long
_____Of Value to Me	_____Waste of Time

SRJ/NSF/League/Jan '79